RACER 2003
How It Is Used by USACE For Estimating Environmental Remediation Projects

U. S. Army Corps of Engineers

HTRW-CX

June 2003 Tri-Services Cost Conference

Presentation Overview

- What is *RACER*?
- *RACER* Development History
- *RACER* Use in Cost Estimating
- *RACER* User Profile
- Summary of *RACER* 2003 System Enhancements
- *RACER* Training
- *RACER 2003* Cost Estimating Process Overview
- Future *RACER* Development
- How to Obtain *RACER 2003*

What is *RACER*?

RACER (Remedial Action Cost Engineering and Requirements) is an automated, parametric cost estimating tool that can be used to estimate costs for all phases of environmental remediation including:

- Studies
- Remedial Design
- Interim Action
- Remedial Action
- Operations and Maintenance
- Long Term Monitoring
- Site Close-out
- Site Work

RACER Development History

- System originally developed in 1991 under Air Force funding; Several releases occurred between 1991 - 1996
- Talisman Partners entered into a partnership with the Air Force to upgrade the software starting in 1997
- New System Design and Upgrading occurred in 1997 and 1998
- Talisman acquired by Earth Tech in 2002
- Earth Tech issued 2002 and 2003 releases

RACER Development History

- New System development and upgrading occurs continually as funding allows
- *RACER* Technical Review Group, consisting of government, consultant, and industry users, provided comments, direction, and review
- *RACER* Government Steering Committee approve upgrades
- System upgrades will occur annually in October

RACER Use in Cost Estimating

- *RACER* provides the detail of a definitive estimate, but can also be used at the order-of-magnitude stage of cost estimating
- *RACER* provides the accuracy of a manual estimate, but faster, less error prone, and much more efficient in comparing alternatives

RACER Use in Cost Estimating

- *Army IRP*
- *FUDS*
- *Superfund*
- *DOE*
- *Others*

RACER Use in Cost Estimating

- USACE develops budget estimates for Formerly Used Defense Sites Program in the Report for Congress using *RACER*
  - Very little information available on sites, therefore "Wizard" provides consistency
  - *RACER* accommodates estimating for all the phases and categories the Department of Defense has mandated
  - Estimates are prepared for each site by the Districts and reviewed by the HTRW-CX

RACER Use in Cost Estimating

- Consistent approach
- Accepted by audit agencies
- Allows users to develop detailed estimates based on minimum design information
- Significant user base across Federal Government
- Accepted by regulatory and other public agencies
- Software provides significant flexibility for tailoring by individual user; design allows easy updating and enhancements

RACER Use in Cost Estimating

- Scope is documented
- Ability to easily explore alternatives
- Key cost drivers identified
- A comprehensive baseline is established
- Provides a means of communicating the project costs
- Estimate can be easily updated

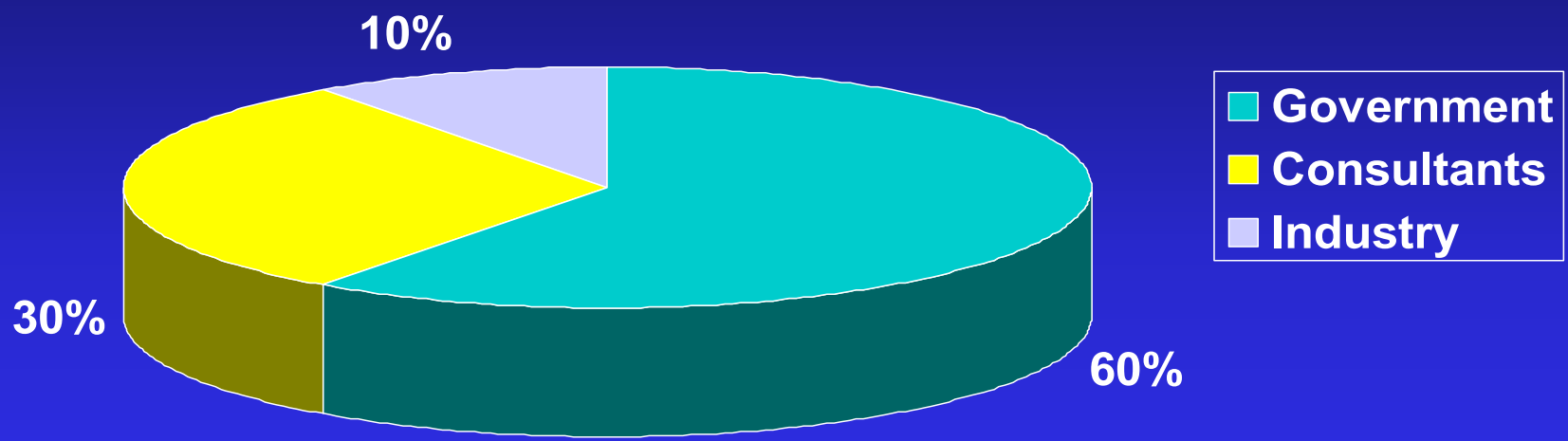
RACER Use in Cost Estimating

- Comprehensive help features engineering information, system operating instructions, and technology applications and limitations
- System is annually updated with more remediation technologies and revised price data
- Cost estimates are location-specific and include general conditions, overhead and profit

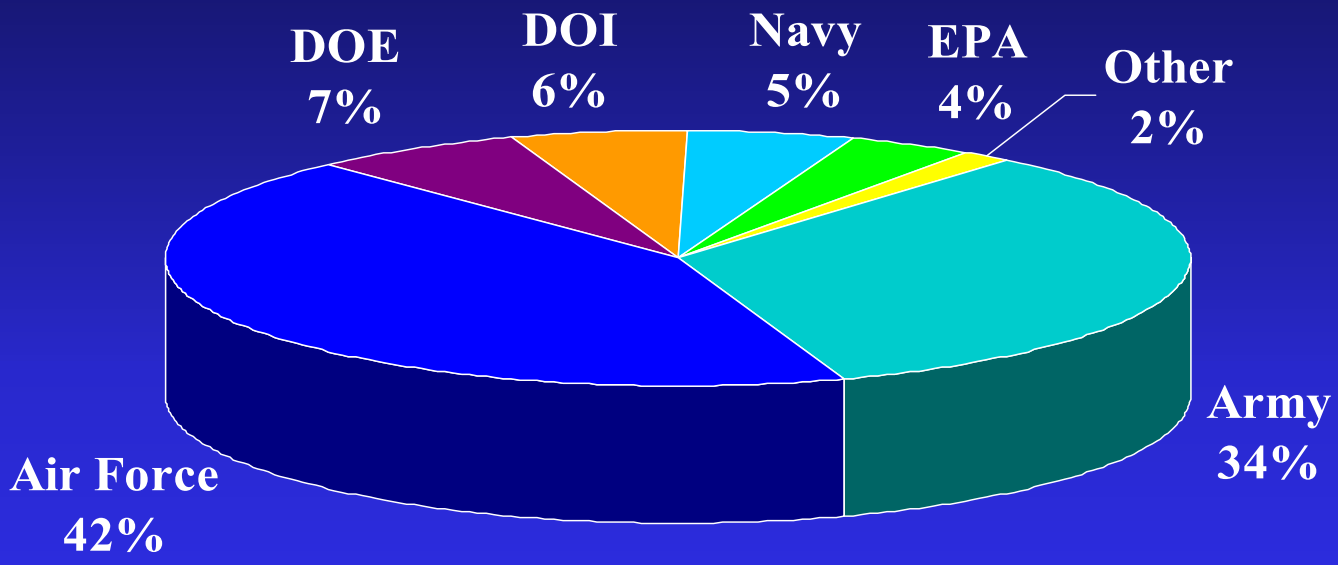
Comments by Users on Why They Like to Use *RACER*

- Relatively easy to use
- Provides detailed logic and allows the estimator to make a complete estimate without requiring detailed knowledge of a project
- Provides significant flexibility to tailor the system to unique program/MACOM/installation requirements
- Requires much less time to make an estimate versus manual methods
- Provides tips and checks to make sure users don't "forget" cost elements

RACER User Profile



RACER Federal Government User Profile



Total Federal Government Users = 725

Summary of *RACER 2003* System Enhancements

- No Markup Preference - allows users to view reports of direct costs
- Technical Drawings for 14 Treatment technologies in the RACER Help System
- Tab Notes - allows users to enter comments or notes for each tab of each RACER technology
- Template Updater - allows user to remove unused markup, labor, analytical, and professional templates from RACER database

Summary of *RACER 2003* System Enhancements (Continued)

- Update RACER Database Utility – allows user to update previous 2001 or 2002 RACER estimate costs to the 2003 version costs
- New Conversion Calculator – allows user to select this feature from the RACER Help dropdown menu to convert area, volume, metric, speed, temperature, time and density
- Sorting – allows the user to sort the tree display on the left side of the main RACER screen at Level 1 by Project ID or Name

Summary of *RACER 2003* System Enhancements (Continued)

- Bioslurping Model – New Treatment model based on the SVE and Bioventing models. Utilizes elements of both bioventing and free product recovery
- Ordnance and Explosive Sifting Model – allows the user to estimate the cost of an OE sifting project
- User now has the option of running reports without escalation
- Interim and Remedial Action Wizard – updated to incorporate both primary and secondary media and contaminants

RACER FY03 Cost to Complete Training

HQ USACE Policy for Developing CTC Estimates

Requirements for Training in Preparation of CTC Estimates:

- The DERP Management Guidance, September 2001
  - USACE must implement a formal training program
- The FUDS draft ER 200-3-1, FUDS Program Policy (published end of FY 03)
  - Chapter 6, Planning, Programming, Budgeting, Executing and Reporting
  - Appendix E, Project Cost to Complete estimating Guidance

RACER FY03 Cost to Complete Training

- Conducted 3 FUDS Training Classes at Earth Tech offices in Denver – Feb/Mar 2003
- Over 25 persons trained
- About 80 persons trained the last 3 years
- FY 04 Training – TBD based on survey of needs later this year (3 Sessions Likely)
- Air Force conducts a number of classes each year

RACER 2003 Cost Estimating Process Overview

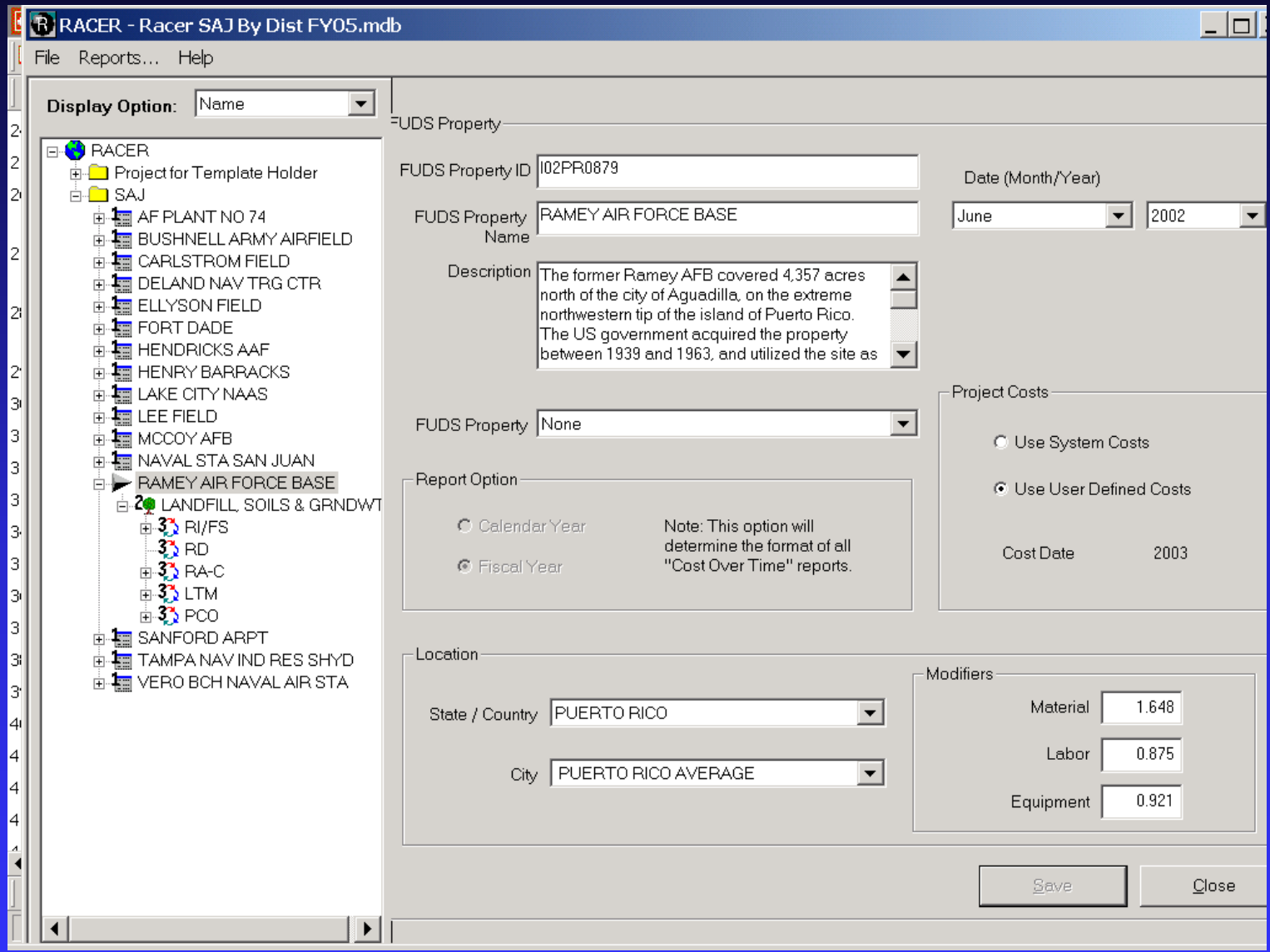
RACER Environmental Cost Models

- Preliminary Assessment
- Site Inspection
- Remedial Investigation
- Feasibility Study
- RCRA Facility Investigation
- Corrective Measures Study
- Remedial Design
- Administrative Record
- Advanced Oxidation
- Air Sparged Hydro Cyclone
- Air Sparging
- Air Stripping
- Archive Search Reports
- Asbestos Removal
- Bioslurping
- Bioventing
- Bulk Material Storage
- Capping
- Carbon Adsorption (Gas)
- Carbon Adsorption (Liquid)
- Coagulation/Flocculation
- Contaminated Building Materials
- D&D Sampling and Analysis
- Decontamination Facilities
- Dewatering (Sludge)
- Discharge to POTW
- Drum Removal
- Ex Situ Bioreactors
- Ex Situ Land Farming
- Ex Situ Solidification/ Stabilization
- Ex Situ Vapor Extraction
- Excavation
- Final Status Survey
- Five Year Review Documentation
- Free Product Removal
- French Drain
- Groundwater Extraction Wells
- Groundwater Monitoring Wells
- Heat Enhanced Vapor Extraction
- In Situ Biodegradation
- In Situ Landfarming
- In Situ Solidification
- In Situ Vitrification
- Infiltration Gallery
- Injection Wells
- L L Radioactive Soil Treatment
- Media Filtration
- Misc. Field Installation (NEW)
- Metals Precipitation
- Miscellaneous Field Installation
- Monitoring
- Natural Attenuation
- Neutralization
- Off-Site Trans and Landfill Disposal
- Off-Site Trans and Thermal Treatment
- Oil/Water Separation
- On-Site Incineration
- On-Site Low Temperature Thermal Desorption
- Ordnance and Explosive
- Institutional Controls
- Ordnance and Explosive Monit
- Ordnance and Explosive Sifting

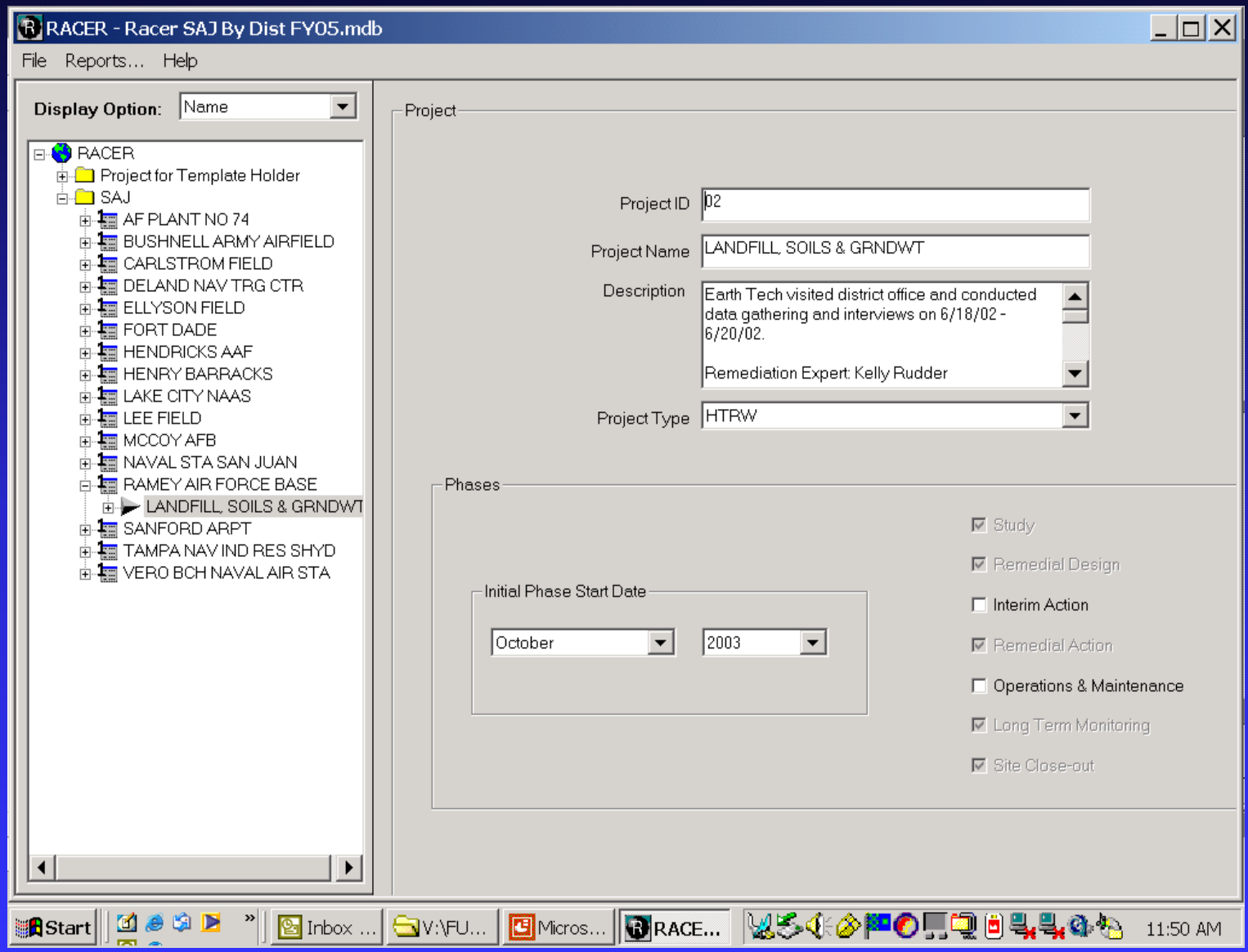
RACER Environmental Cost Models

- Ordnance and Explosive Site Charact and Removal Assmt
- Ordnance and Explosive Removal Action
- Operations and Maintenance
- Passive Water Treatment
- Per Diem Rates
- Permeable Barriers
- Phytoremediation
- Professional Labor Management
- Residual Waste Management
- Slurry Wall
- Soil Flushing
- Soil Vapor Extraction
- Soil Washing
- Solvent Extraction
- Special Well Drilling
- Storage Tank Installation
- Thermal/Catalytic Oxidation
- Transportation
- Trenching/Piping
- UST Closure
- UXO Active Range Clearance Planning
- UXO Active Target Clearance
- UXO Scrap Removal

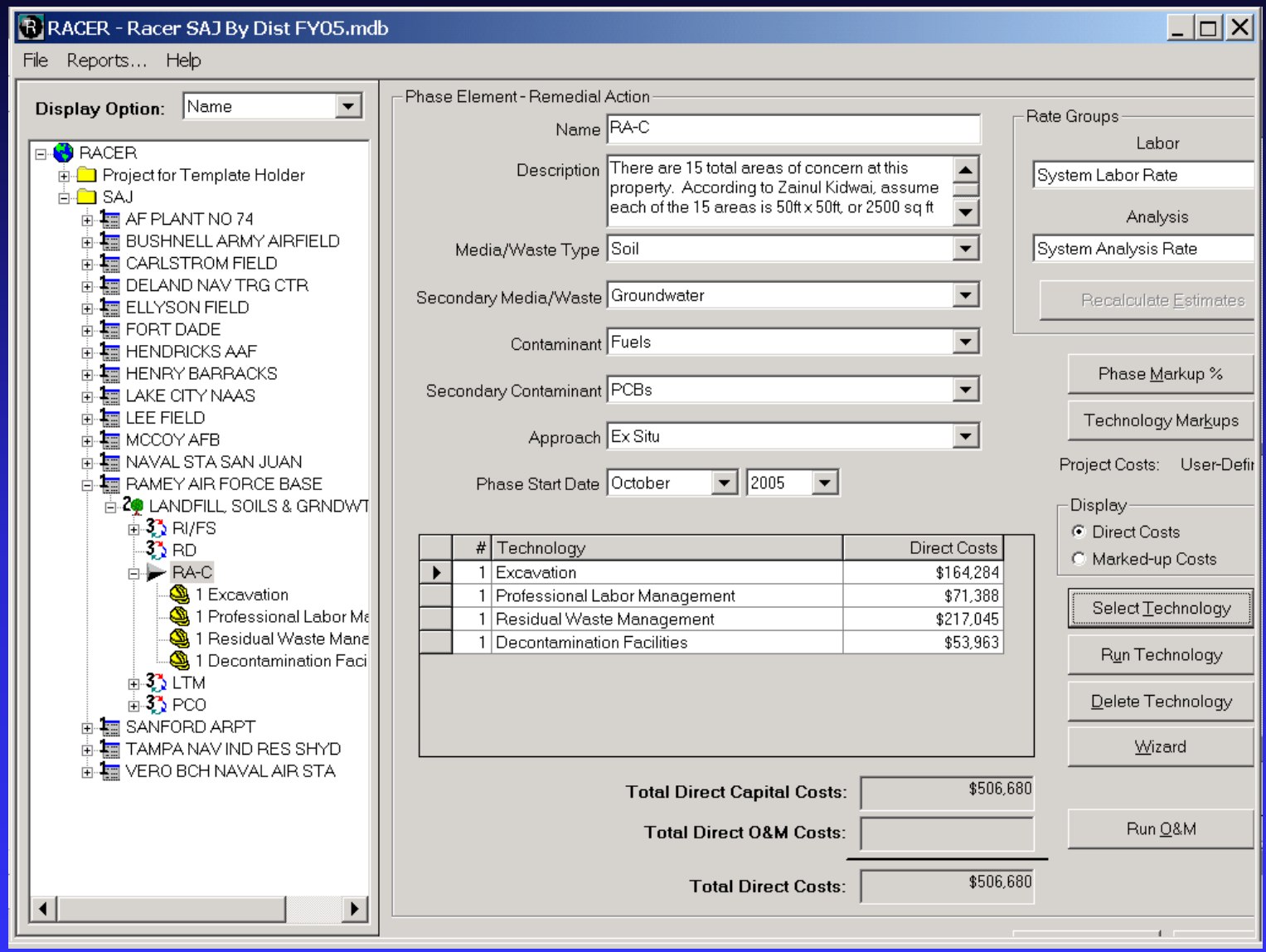
Level 1 (Project) Setup



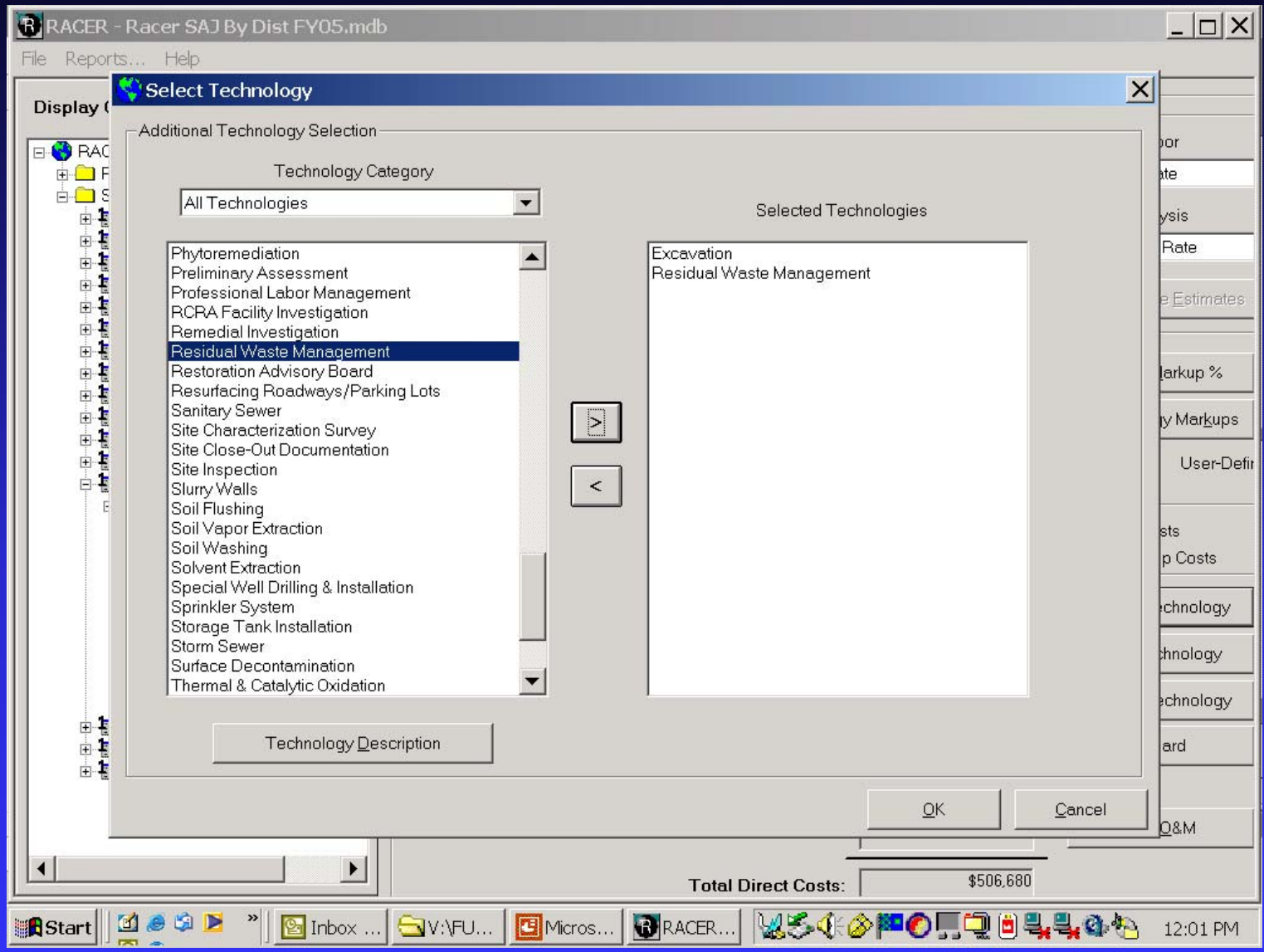
Level 2 (Site) Setup



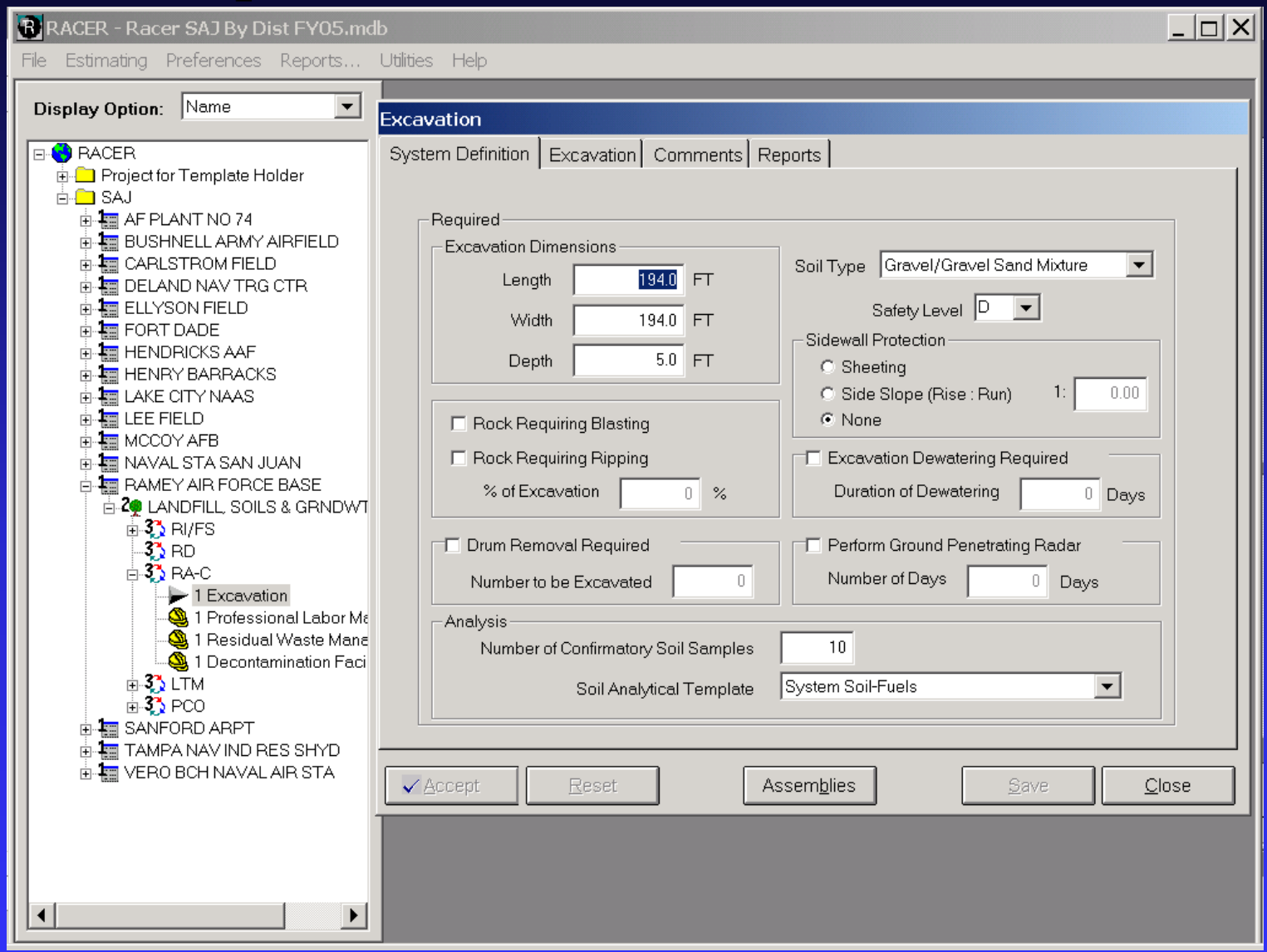
Phase Cost Summary



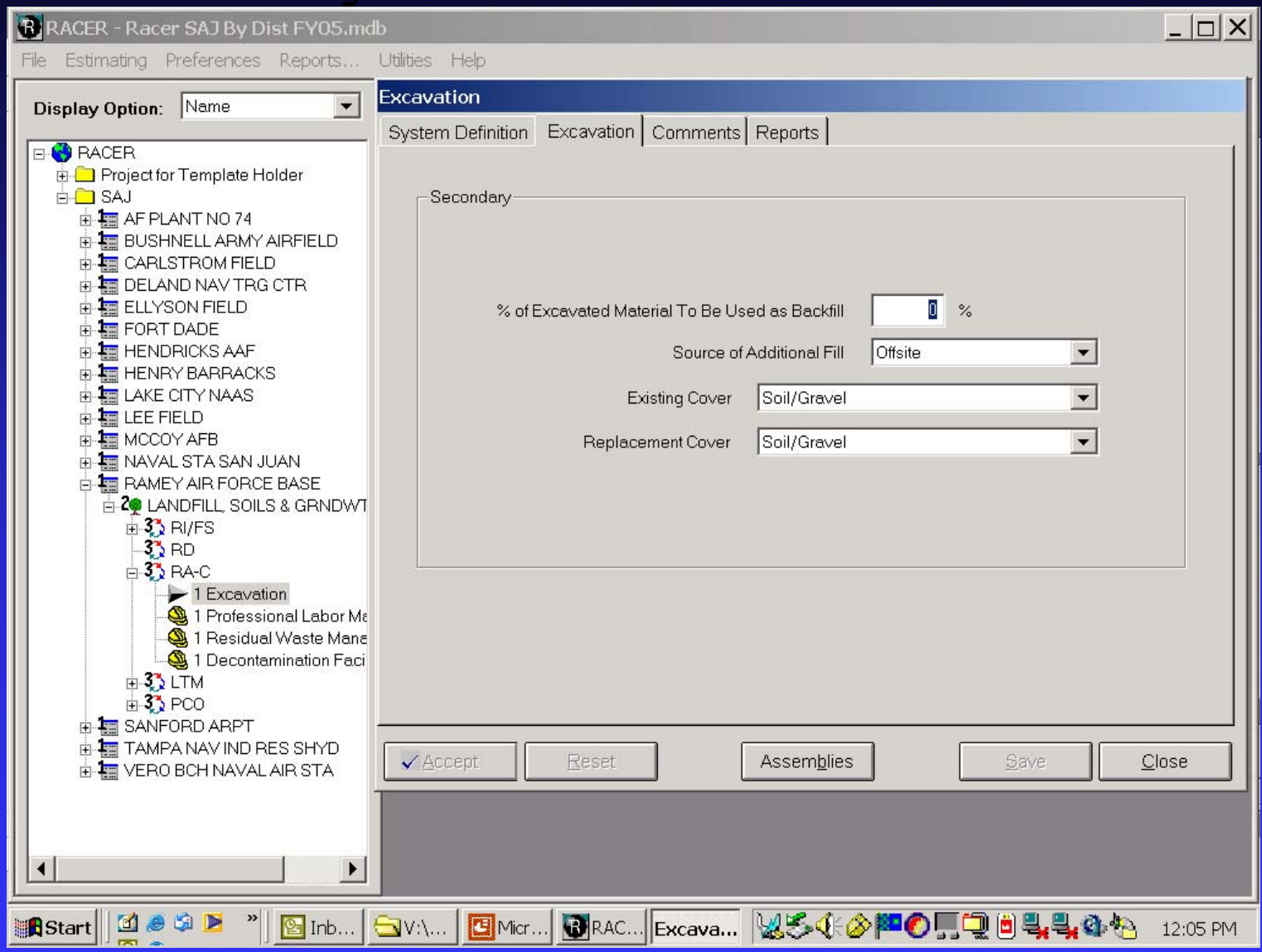
Select Technology



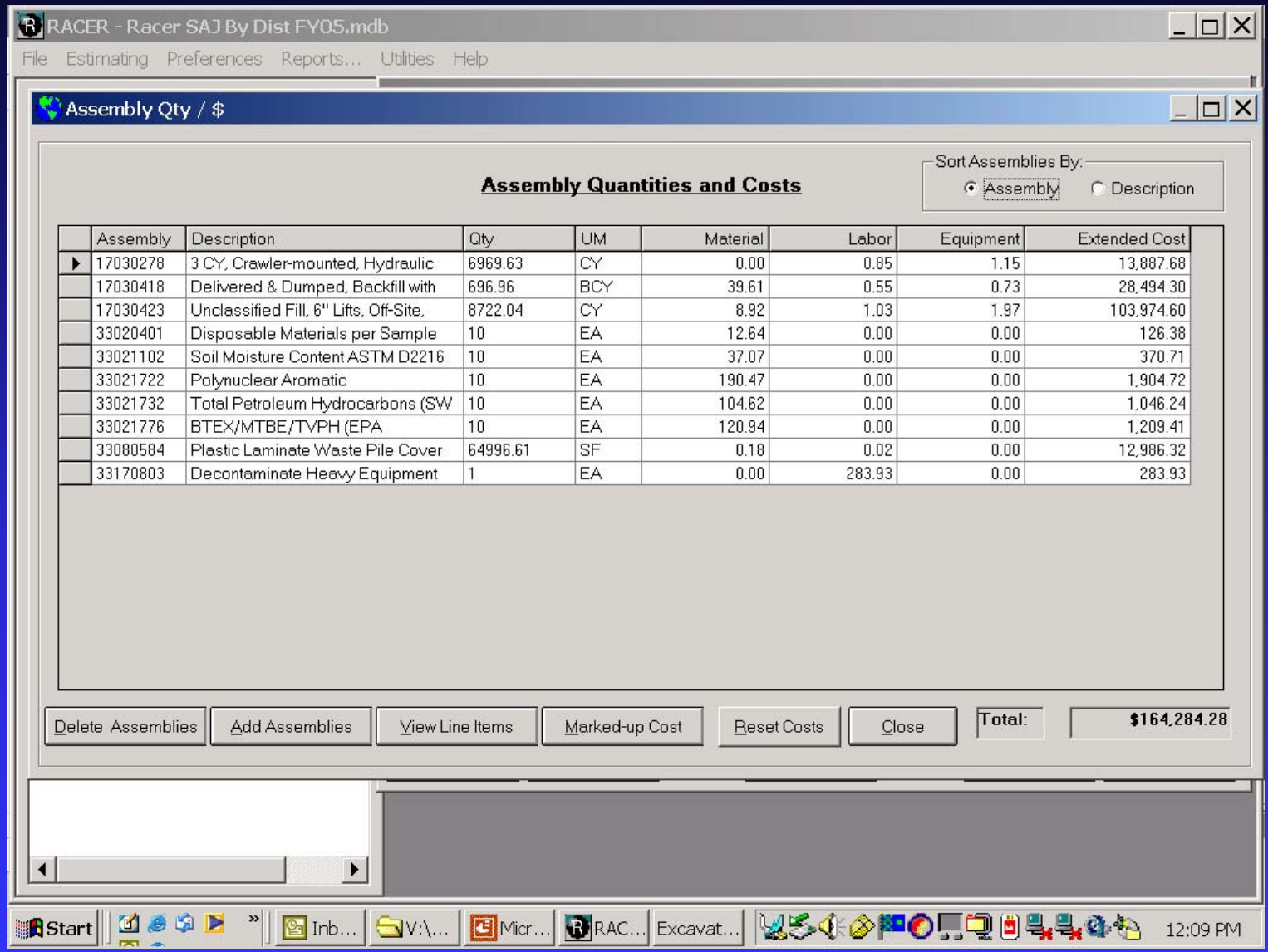
Required Parameters - Excavation



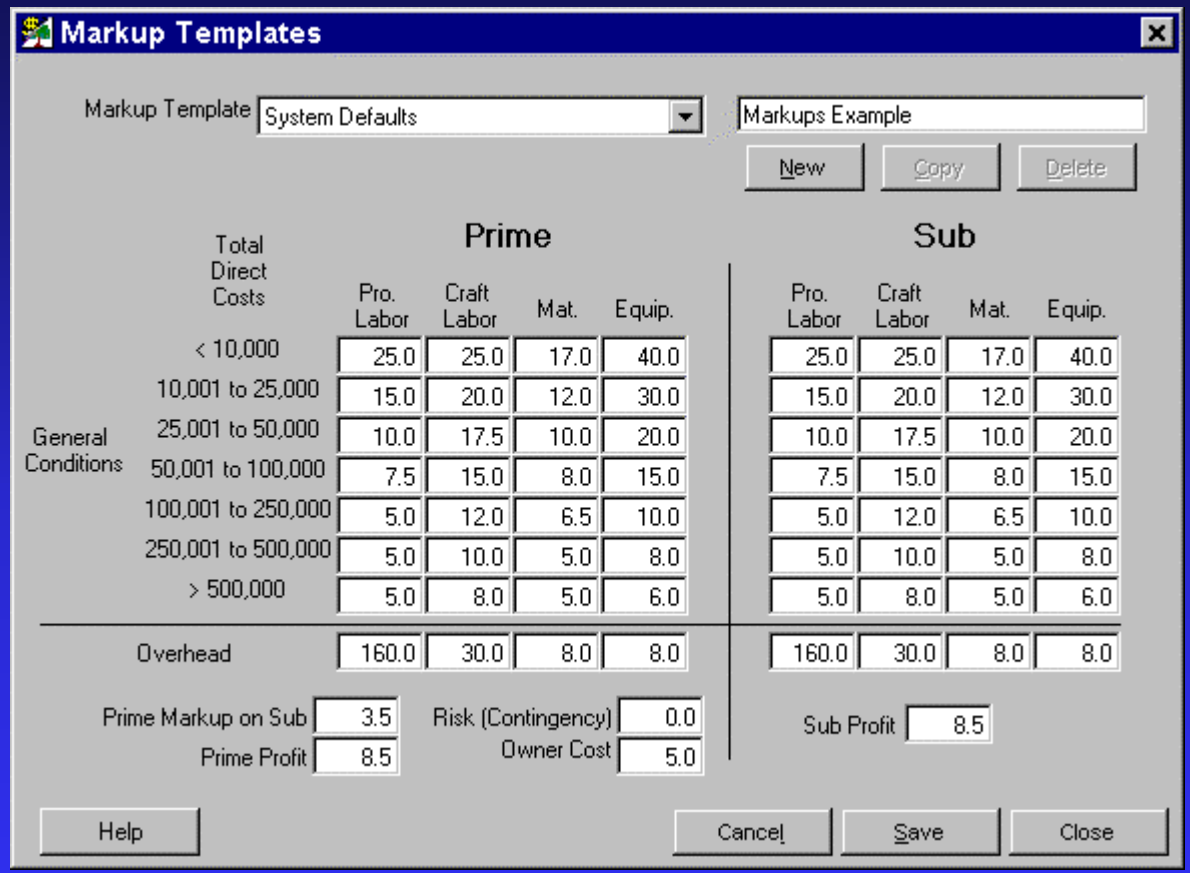
Secondary Parameters - Excavation



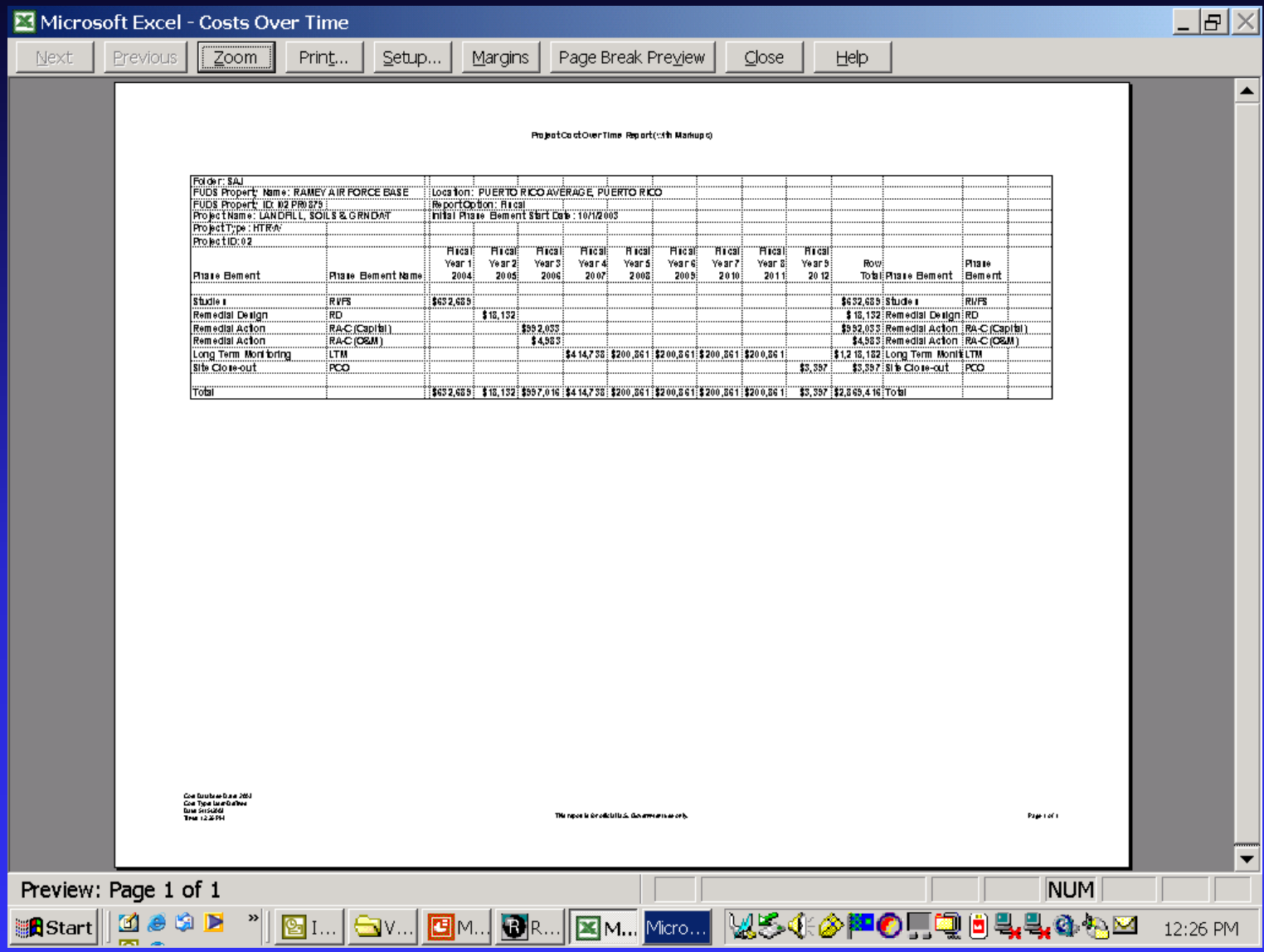
Excavation - Cost Summary



Markups Template



Cost Over Time Report



Future RACER Development

- USACE Role in future RACER Development
  - Identify new technologies for model development
  - Continue to evaluate models to ensure technically correct
  - RACER 2004 scheduled to be released Fall 2003

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- Your Questions?